JP-A No. 11-237966

[Claims]

[Claim 1]

A television broadcast multiplex data printing method of receiving a transmitted television broadcast signal and print-related data multiplexed therewith by a television broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a television monitor based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a user,

characterized in that the television broadcast receiving unit separates the television broadcast signal and the print-related data transmitted in multiplex form, detects whether a printer is connected, then, upon detecting that the printer is connected, analyzes the print-related data to obtain information indicating the presence of the print-object data and the print-object data, synthesizes the information indicating the presence of the print-object data with the television broadcast signal for output to the television monitor, and, in response to a print instruction from the user, outputs the print-object data to the printer.

[Claim 2]

A television broadcast multiplex data printing method of receiving a transmitted television broadcast signal and print-related data multiplexed therewith by a television broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a television monitor based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a user,

characterized in that the television broadcast receiving unit separates the television broadcast signal and the print-related data transmitted in multiplex form, and transfers the print-related data to the printer, and that the printer analyzes the print-related data transferred from the television broadcast receiving unit to obtain information indicating the presence of the print-object data and the print-object data, synthesizes the information indicating the presence of the print-object data with the television broadcast signal for output to the television monitor, and, in response to a print instruction from the user, executes a printing process on the print-object data.

[Claim 3]

A television broadcast multiplex data printing system for receiving a transmitted television

broadcast signal and print-related data multiplexed therewith by a television broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a television monitor based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a user,

characterized in that the television broadcast receiving unit includes:

a demultiplexing unit for separating the television broadcast signal and the print-related data transmitted in multiplex form,

a printer connection detecting unit for detecting whether a printer is connected,

a print instruction receiving unit for accepting a print instruction from a user,

a print data analyzing unit for analyzing, upon recognizing the connection of the printer based on result of detection by the printer connection detecting unit, the print-related data to obtain information indicating the presence of the print-object data and the print-object data,

a synthesizing unit for synthesizing the information indicating the presence of the print-object data, obtained by the print data analyzing unit, with the television broadcast signal, obtained

in the demultiplexing unit,

an image output unit for outputting image data from the synthesizing unit to a television monitor, and

a printer control unit for executing a print control on the printer upon receiving the print-object data from the print data analyzing unit.

[Claim 4]

A television broadcast multiplex data printing system for receiving a transmitted television broadcast signal and print-related data multiplexed therewith by a television broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a television monitor based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a user,

characterized in that the television broadcast receiving unit at least includes a demultiplexing unit for separating the television broadcast signal and the print-related data transmitted in multiplex form, and transfers the print-related data, separated in the demulriplexing unit to a printer, and

the printer includes:

a print instruction receiving unit for accepting a print instruction from a user,

a print data analyzing unit for analyzing the print-related data, transferred by the television broadcast receiving unit, to obtain information indicating the presence of print-object data and the print-object data,

a synthesizing unit for synthesizing the information indicating the presence of the print-object data, obtained by the print data analyzing unit, with the television broadcast signal, obtained in the demultiplexing unit,

an image output unit for outputting image data from the synthesizing unit to a television monitor, and

a printer control unit for executing a print control on the printer upon receiving the print-object data from the print data analyzing unit.

[Claim 5]

A recording medium storing a television broadcast multiplex data printing program for receiving a transmitted television broadcast signal and print-related data multiplexed therewith by a television broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a television monitor based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a user,

the television broadcast multiplex data printing program being characterized by including, in the television broadcast receiving unit,

a procedure of separating the television broadcast signal and the print-related data transmitted in multiplex form, upon reception thereof,

a procedure of detecting whether a printer is connected, and, upon recognizing the connection of the printer, analyzing the print-related data to obtain information indicating the presence of the print-object data and the print-object data,

a procedure of synthesizing thus obtained information indicating the presence of the print-object data with the television broadcast signal, and executing an output to a television monitor, and

a procedure of outputting the print-object data to the printer upon receiving a print instruction from a user.

[Claim 6]

A recording medium storing a television broadcast multiplex data printing program for receiving a transmitted television broadcast signal and print-related data multiplexed therewith by a television broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a television monitor based on a result of the analysis, and printing the

print-object data with a printer in response to a print instruction from a user,

the television broadcast multiplex data printing program being characterized by including, in the television broadcast receiving unit,

a procedure of separating the television broadcast signal and the print-related data transmitted in multiplex form, upon reception thereof, and outputting the print-related data to the printer, and,

in the printer,

a procedure of analyzing the print-related data to obtain information indicating the presence of the print-object data and the print-object data,

a procedure of synthesizing thus obtained information indicating the presence of the print-object data with the television broadcast signal, and executing an output to a television monitor, and

a procedure of printing the print-object data upon receiving a print instruction from a user.

[Detailed Description of the Invention]

[0001]

[Technical Field to which the Invention Belongs]

The present invention relates to a television broadcast multiplex data printing method and system for enabling printing of data multiplexed with a television broadcast signal, and a recording medium

storing a television broadcast multiplex data printing program.

[0002]

[Prior Technology]

There is already proposed a system of multiplexing various data with a broadcast electric wave (satellite broadcast wave or ground wave) of television (hereinafter represented as TV) and transmitting it to a TV system of viewer side and printing data required by the viewer (called user) by a printer connected to TV. A specific example is to display a merchandise on the TV screen and printing corresponding data (such as catalog content showing details of the merchandise).

[0003]

For example, in the aforementioned example of printing data relating to any merchandise, such merchandise is displayed on the TV screen and information indicating presence of print-object data relating to the merchandise is also displayed, and the user, viewing such display and if requiring detailed data, inputs a print instruction. Thus detailed data concerning the merchandise are printed out.

[0004]

[Problems the Invention is to Solve]

However, not all the users have a printer

connected to the TV system. For a user without a connected printer, a display indicating the presence of print data, given every time, is felt rather annoying, and the display indicating the presence of print data, given too frequently, may be felt unpleasant to many users. Also it may be considered to implicitly request the purchase of a printer to the users having no the printer and is therefore not desirable.

[0005]

In order to cope with such situation, it is conceivable, at the emission source of the TV broadcast wave, to recognize the system status (presence/absence of printer etc.) of the user and to prepare and transmit a corresponding content of broadcasting, but the preparation of broadcast content based on all the system configurations of unspecified plural users is extremely unrealistic in consideration of the cost.

[0006]

Therefore, an object of the present invention is to judge presence/absence of the printer in the TV system of the user, and, only in case a printer is connected, to display the presence of print-object data on the TV monitor and to enable reception of a print instructing input from the user.

[0007]

[Means for Solving the Problems]

For attaining the aforementioned object, a TV broadcast multiplex data printing method described in claim 1, of receiving a transmitted TV broadcast signal and print-related data multiplexed therewith by a TV broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a TV monitor based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a user, is characterized in that the TV broadcast receiving unit separates the TV broadcast signal and the print-related data transmitted in multiplex form, also detects whether a printer is connected, then, upon detecting that the printer is connected, analyzes the print-related data to obtain information indicating the presence of the print-object data and the print-object data, synthesizes the information indicating the presence of the print-object data with the TV broadcast signal for output to the TV monitor, and, in response to a print instruction from the user, outputs the print-object data to the printer.

[0008]

Also a TV broadcast multiplex data printing method described in claim 2, of receiving a transmitted TV broadcast signal and print-related

data multiplexed therewith by a TV broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a TV monitor based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a user, is characterized in that the TV broadcast receiving unit separates the TV broadcast signal and the print-related data transmitted in multiplex form, and transfers the print-related data to the printer, and that the printer analyzes the print-related data transferred from the TV broadcast receiving unit to obtain information indicating the presence of the print-object data and the print-object data, synthesizes the information indicating the presence of the print-object data with the TV broadcast signal for output to the TV monitor, and, in response to a print instruction from the user, executes a printing process on the print-object data.

[0009]

Also a TV broadcast multiplex data printing system described in claim 3, for receiving a transmitted TV broadcast signal and print-related data multiplexed therewith by a TV broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a TV monitor based on a result of the

analysis, and printing the print-object data with a printer in response to a print instruction from a user, is characterized in that the TV broadcast receiving unit includes a demultiplexing unit for separating the TV broadcast signal and the print-related data transmitted in multiplex form, a printer connection detecting unit for detecting whether a printer is connected, a print instruction receiving unit for accepting a print instruction from a user, a print data analyzing unit for analyzing, upon recognizing the connection of the printer based on result of detection by the printer connection detecting unit, the print-related data to obtain information indicating the presence of the print-object data and the print-object data, a synthesizing unit for synthesizing the information indicating the presence of the print-object data, obtained by the print data analyzing unit, with the TV broadcast signal, obtained in the demultiplexing unit, an image output unit for outputting image data from the synthesizing unit to a TV monitor, and a printer control unit for executing a print control on the printer upon receiving the print-object data from the print data analyzing unit.

[0010]

Also a TV broadcast multiplex data printing system described in claim 4, for receiving a

transmitted TV broadcast signal and print-related data multiplexed therewith by a TV broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a TV monitor based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a user, is characterized in that the TV broadcast receiving unit at least includes a demultiplexing unit for separating the TV broadcast signal and the print-related data transmitted in multiplex form, and transfers the print-related data, separated in the demulriplexing unit to a printer, and that the printer includes a print instruction receiving unit for accepting a print instruction from a user, a print data analyzing unit for analyzing the print-related data, transferred by the TV broadcast receiving unit, to obtain information indicating the presence of print-object data and the print-object data, a synthesizing unit for synthesizing the information indicating the presence of the print-object data, obtained by the print data analyzing unit, with the TV broadcast signal, obtained in the demultiplexing unit, an image output unit for outputting image data from the synthesizing unit to a TV monitor, and a printer control unit for executing a print control on the printer upon receiving the

print-object data from the print data analyzing unit.

[0011]

Also a recording medium storing a TV broadcast multiplex data printing program described in claim 5, for receiving a transmitted TV broadcast signal and print-related data multiplexed therewith by a TV broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a TV monitor based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a user, is characterized in that the TV broadcast multiplex data printing program includes, in the TV broadcast receiving unit, a procedure of separating the TV broadcast signal and the print-related data transmitted in multiplex form, upon reception thereof, a procedure of detecting whether a printer is connected, and, upon recognizing the connection of the printer, analyzing the print-related data to obtain information indicating the presence of the print-object data and the print-object data, a procedure of synthesizing thus obtained information indicating the presence of the print-object data with the TV broadcast signal, and executing an output to a TV monitor, and a procedure of outputting the print-object data to the printer upon receiving a print instruction from a user.

[0012]

Also a recording medium storing a TV broadcast multiplex data printing program described in claim 6, for receiving a transmitted TV broadcast signal and print-related data multiplexed therewith by a TV broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a TV monitor based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a user, is characterized in that the TV broadcast multiplex data printing program includes, in the television broadcast receiving unit, a procedure of separating the TV broadcast signal and the print-related data transmitted in multiplex form, upon reception thereof, and outputting the print-related data to the printer, and that, in the printer, a procedure of analyzing the print-related data to obtain information indicating the presence of the print-object data and the print-object data, a procedure of synthesizing thus obtained information indicating the presence of the print-object data with the TV broadcast signal, and executing an output to a TV monitor, and a procedure of printing the print-object data upon receiving a print instruction from a user.

[0013]

Thus, according to the present invention, the TV broadcast receiving unit detects whether a printer is connected, then, only in case of detecting that the printer is connected, synthesizes the information indicating the presence of the print-object data with the TV broadcast signal for output to the TV monitor, and, in response to a print instruction from the user, outputs the print-object data to the printer, whereby the information indicating the presence of the print data is not at all displayed in the TV monitor of the viewer whose printer is not connected, and the viewer therefore need not look at the annoying display indicating the presence of the print data.

[0014]

Also the TV broadcast receiving unit separates the TV broadcast signal and the print-related data transmitted in multiplex form, and transfers the print-related data to the printer, which is provided with functions of analyzing the print-related data transferred from the TV broadcast receiving unit to obtain information indicating the presence of the print-object data and the print-object data, synthesizing the information indicating the presence of the print-object data with the TV broadcast signal for output to the TV monitor, and, in response to a print instruction from the user, executing a printing process on the print-object data, so that the

information indicating the presence of the print-object data can be displayed on the monitor only in case of a printer connection, whereby the information indicating the presence of the print data is not at all displayed in the TV monitor of the viewer whose printer is not connected, and the viewer therefore needs not look at the annoying display indicating the presence of the print data.

[0015]

In this manner, the present invention inhibits, on a TV monitor of a user having no a printer, a printing-related image display which is irrelevant to such user, thereby relieving the user from an unpleasant feeling caused by frequent irrelevant image displays. Besides, since such process can be executed at the TV system of the user, it is unnecessary, at the emission source of the TV broadcast wave, to execute a cumbersome process such as recognizing the system status (presence/absence of printer etc.) of the user and preparing and transmitting a corresponding content of broadcasting.

[0016]

{Embodiments of the Invention}

In the following, embodiments of the present invention will be explained. The embodiments assume a case of advertising a certain merchandise by TV, wherein the merchandise to be advertised is

introduced by image data and audio data of a TV broadcast signal and print-related data corresponding to the merchandise is transmitted by multiplexing with such TV broadcast signal. The print-related data is constituted of detailed information on the merchandise (called print-object data) and information indicating the presence of the print-object data, and the print-object data can include not only character information indicating a price, a quality, a function and the like but also graphic information, and can be, for example, a merchandise catalog.

[0017] (First embodiment)

Fig. 1 shows a system configuration for explaining a first embodiment of the present invention, principally constituted of a TV monitor 1 and a TV broadcast receiving unit 2.

[0018]

The TV broadcast receiving unit 2 includes a tuner unit 20 for selecting a frequency or a channel of the TV broadcast wave, a demultiplexing unit 21 for separating the television broadcast signal (constituted of the image data and the audio data) and the print-related data multiplexed therewith, an audio output unit 22 for outputting the audio data separated by the demultiplexing unit 21, a printer connection detecting unit 23 for detecting whether a

printer 3 is connected, a print instruction receiving unit 24 for accepting a print instruction from a user, a print data analyzing unit 25 for checking the state of the printer connection detecting unit 23, and, upon recognizing the connection of the printer, and analyzing the print-related data to obtain information indicating the presence of the print-object data and the print-object data, an image synthesizing unit 26 for synthesizing the information indicating the presence of the print-object data, obtained by the print data analyzing unit 25, with the image data, obtained in the demultiplexing unit 22, an image output unit 27 for outputting the image data from the image synthesizing unit 26 to the TV monitor 1, and a printer control unit 28 for activating the printer 3 and executing a print control upon receiving the print-object data from the print data analyzing unit 25.

[0019]

A specific example will be explained in such configuration. As explained above, there is assumed a case of advertising a certain merchandise utilizing the TV broadcast. Now, by the image data and the audio data of the TV broadcast signal, an image of the merchandise to be advertised is displayed on the TV monitor 1, and an explanation on the merchandise is given by the audio signal. At the same time,

print-related data multiplexed with these TV broadcast signals are supplied to the print data analyzing unit 25.

[0020]

In this state, the print data analyzing unit 25 checks the state of the printer connection detecting unit 23, and judges whether the printer 3 is connected. If the printer 3 is connected, it recognizes such state and analyzes the print-related data separated by the demultiplexing unit 21. The print-related data are described by a language based on HTML (hyper text markup language) as shown in Fig. 2.

[0021]

Referring to Fig. 2, a portion positioned between a tag <print_system> and a tag </print_system> is a portion to be processed. The portion positioned between the tag <print_system> and the tag </print_system> is processed only when the printer 3 is connected, and the image data analyzing unit 25, upon recognizing that the printer 3 is connected, transfers the portion positioned between the tag <print_system> and the tag </print_system>, namely 'Press "Print", the catalog will be printed out', to the image synthesizing unit 26. The image synthesizing unit 26 synthesizes this text 'Press "Print", the catalog will be printed out' with the

image data of the TV broadcast signal separated by the demultiplexing unit 21. Thus synthesized image data are displayed by the image output unit 27 on the TV monitor 1.

[0022]

Fig. 3 shows a content displayed on the TV monitor 1. In the example shown in Fig. 3, there are shown an image of the merchandise 11 to be advertised, and information 12 indicating the presence of print-object data for such merchandise 11, such as 'Press "Print", the catalog will be printed out'.

[0023]

The user looks at the information 12 indicating the presence of the print-object data, and, in case of wishing detailed information, enters a print instructing request. Thus the print instruction receiving unit 24 receives the print instructing request from the user and informs it to the print data analyzing unit 25. The print data analyzing unit 25 recognizes the print instructing request from the user and transfers the print-object data to the printer control unit 28.

[0024]

The print-object data are a portion positioned between a tag <print_document> and a tag </print_document> in Fig. 2, namely 'Press "Print", the catalog will be printed out', having a content

such as "Fashion Catalog" or "Discount price is $300". The print-object data are basically more detailed information similar to a merchandise catalog including various information such as, in case the merchandise is a clothing, a fabric quality, a size type and a color type, but here is shown a simplified content for the purpose of simplicity.

[0025]

Such print-object data are transferred, by the print data analyzing unit 25, to the printer control unit 28, which controls the printer 3 to initiate the printing. Thus the printer 3 prints out information such as "Fashion Catalog" or "Discount price is $300".

[0026]

Fig. 4 is a flow chart showing a process sequence of the first embodiment. Further explanation will be given with reference to this flow chart, though the explanation in the foregoing may be duplicated in many units. At first the tuner unit 20 selects a desired channel (step s1). Then the demultiplexing unit 21 separates the image data, the audio data and the print-related data (step s2). The image data thus separated are supplied to the image synthesizing unit 26, the audio data to the audio output unit 22, and the print-related data to the print data analyzing unit 25.

[0027]

Then the print data analyzing unit 25 checks the state of the printer connection detecting unit 23, and judges whether the printer 3 is connected (step s3). If the printer 3 is connected (step s4), the print data analyzing unit 25 analyzes the print-related data (step s5) and judges whether the print-related data have been received (step s6). If the print-related data have been received, information indicating the presence of the print-object data, such as 'Press "Print", the catalog will be printed out', explained above is transferred to the image synthesizing unit 26 (step s7).

[0028]

The image synthesizing unit 26 synthesizes such content with the image data of the TV broadcast signal and sends the result to the image output unit 27 (step s8).

[0029]

Then the print instruction receiving unit 24 discriminates whether a print instructing request has been received from the user (step s9), and, having received a print instructing request, sends a print instruction to the print data analyzing unit 25 (step s10). In response, the print data analyzing unit 25 transfers the print-object data to the printer control unit 28 (step s11), which controls the printer 3 to initiate a printing (step s12).

[0030]

In this manner, the information indicating the presence of the print-object data is displayed on the TV monitor 1 only in case a printer is connected to the TV system of the user, and, when the user observing such information enters a print instructing request, the print-object data are printed out from the printer 3.

[0031]

Therefore the TV monitor 1 of the user without a connected printer does not display the information indicating the presence of the print-object data, but displays the original TV broadcast only. In this example, there are merely given an image display of the merchandise 11 on the TV monitor 1 and an audio explanation, but the information indicating the presence of the print-object data is not displayed.

[0032]

More specifically, in case the printer 3 is not connected, the printer connection detecting unit 23 detects that the printer 3 is not connected and the print data analyzing unit 25 recognizes such situation and, upon receiving the print-related data separated by the demultiplexing unit 21, does not execute the aforementioned process (process from step s5 to step s12) on the print-related data.

[0033]

Therefore, as the TV monitor of the user having no the connected printer 3 does not display the information indicating the presence of the print-object data, the user having no the connected printer 3 need not look at, every time, the annoying display indicating the presence of the print-object data, thereby being relieved from the unpleasant feeling cause by the display rather irrelevant to the user having no the connected printer.

[0034]

Besides, since such process can be executed at the TV system of the user, it is unnecessary for the TV broadcast wave source side to execute a cumbersome process such as recognizing the system status (presence/absence of printer etc.) of many users and preparing and transmitting a corresponding content of broadcasting.

[0035]

In the first embodiment, the TV broadcast receiving unit 2 may be integrated with the TV monitor 1 or may be constructed as an equipment generally called STB (set box) or IRD (integrated receiver decoder), separate from the TV apparatus.

[0036] (Second embodiment)

The second embodiment shows an example in which the reception data analyzing unit, the image synthesis unit, the image output unit and the print

instruction receiving unit explained above are provided in the printer 3.

[0037]

Fig. 5 shows a system configuration for explaining a second embodiment of the present invention, principally constituted of a TV monitor 1, a TV broadcast receiving unit 2, and a printer 3, and, in this case, the TV broadcast receiving unit 2 includes at least a tuner unit 20, a demultiplexing unit 21 and an audio output unit 22 explained before. The TV broadcast receiving unit 2 may be integrated with the TV monitor 1 or formed separately from the TV apparatus, as in the first embodiment.

[0038]

The printer 3 includes an image data input unit 30 for entering image data separated by the demultiplexing unit 21, a print data input unit 31 for entering print-related data separated likewise by the demultiplexing unit 21, a print instruction receiving unit 32 for accepting a print instruction from a user, a print data analyzing unit 33 for analyzing the print-related data, transferred from the TV broadcast receiving unit 2 through the print data receiving unit 31, to obtain information indicating the presence of the print-object data and the print-object data, an image synthesizing unit 34 for synthesizing the information indicating the

presence of the print-object data, obtained by the print data analyzing unit 33, with the image data, separated in the demultiplexing unit 22, an image output unit 35 for outputting the image data from the image synthesizing unit 34 to the TV monitor 1, a print control unit 36 for executing a print process in response to the print-object data from the print data analyzing unit 33, a sheet feeding tray 37, a sheet discharge tray 38 and the like. Besides these components, various components are present for attaining the function of a printer, but those not directly relevant for explaining the present invention will be omitted from the explanation.

[0039]

A specific example will be explained in such configuration. At first, the printer 3 of such configuration is connected as one of the TV system of the user. In this case, the connections are made, as shown in Fig. 5, in such a manner that the image data separated by the TV broadcast receiving unit 2 is supplied to the image data input unit 30, that the print-related data are supplied to the print data input unit 31, and that the image signal from the image output unit 35 of the printer 3 is outputted to the TV monitor 1.

[0040]

As in the above-described first embodiment,

there will be explained a case of advertising a certain merchandise utilizing the TV broadcast. Now, by the image data and the audio data of the TV broadcast signal, an image of the merchandise to be advertised is displayed on the TV monitor 1, and an explanation on the merchandise is given by the audio signal. At the same time, print-related data multiplexed with these TV broadcast signals are separated by the demultiplexing unit 21 of the TV broadcast receiving unit 2, and supplied to the print data analyzing unit 33 through the print data input unit 31.

[0041]

The print data analyzing unit 33 analyzes the supplied print-related data. The print-related data are described for example by a language based on HTML as shown in Fig. 2.

[0042]

Referring to Fig. 2, a portion positioned between a tag <print_system> and a tag </print_system> is a portion to be processed. The image data analyzing unit 33 transfers, as the information indicating the presence of the print-object data, the portion positioned between the tag <print_system> and the tag </print_system>, namely 'Press "Print", the catalog will be printed out', to the image synthesizing unit 34. The image

synthesizing unit 34 synthesizes this text 'Press "Print", the catalog will be printed out' with the image data of the TV broadcast signal separated in the TV broadcast receiving unit 2. Thus synthesized image data are supplied by the image output unit 35 to the TV monitor 1 and displayed thereon.

[0043]

Fig. 3 shows a content displayed on the TV monitor 1. In the example shown in Fig. 3, there are shown an image of the merchandise 11 to be advertised, and information 12 indicating the presence of print-object data for such merchandise 11 ('Press "Print", the catalog will be printed out').

[0044]

The user looks at the information 12 indicating the presence of the print-object data, and, in case of wishing detailed information, enters a print instructing request. Thus the print instruction receiving unit 32 receives the print instructing request from the user and informs it to the print data analyzing unit 33. The print data analyzing unit 33 recognizes the print instructing request from the user and transfers the print-object data to the printer control unit 36. The print-object data is a portion positioned between a tag <print_document> and a tag </print_document> in Fig. 2, namely 'Press "Print", the catalog will be printed out', having a

content such as "Fashion Catalog" or "Discount price is $300".

[0045]

The print process unit 36 executes a print process on a printing sheet fed from the sheet feeding tray 37, and then discharges the sheet to the sheet discharge tray 38.

[0046]

Fig. 6 is a flow chart showing a process sequence of the second embodiment. Further explanation will be given with reference to this flow chart, though the explanation in the foregoing may be duplicated in many units. At first the TV broadcast receiving unit 2 selects a desired channel (step s21). Then the demultiplexing unit 21 separates the image data, the audio data and the print-related data (step s22). The image data thus separated are supplied to the image synthesizing unit 34 through the image data input unit 30, the audio data to the audio output unit 22, and the print-related data to the print data analyzing unit 33 through the print data input unit 31.

[0047]

Then the print data analyzing unit 33 analyzes the print-related data (step s23) and judges whether the print-related data have been received (step s24). If the print-related data have been received,

information indicating the presence of the print-object data, such as 'Press "Print", the catalog will be printed out', explained above is transferred to the image synthesizing unit 34 (step s25).

[0048]

The image synthesizing unit 34 synthesizes such content with the image data of the TV broadcast signal and sends the result to the image output unit 35 (step s26).

[0049]

Then the print instruction receiving unit 32 discriminates whether a print instructing request has been received from the user (step s27), and, having received a print instructing request, sends a print instruction to the print data analyzing unit 33 (step s28). In response, the print data analyzing unit 33 transfers the print-object data to the printer control unit 36 (step s29), which controls the printer 3 to initiate a printing (step s30).

[0050]

The above-described process is executed only in case a printer is connected to the TV system of the user. Thus, only in case the printer 3 of the second embodiment is connected, the information indicating the presence of the print-object data is displayed on the TV monitor 1, and, when the user observing such information enters a print instructing request, the

print-object data are printed out from the printer 3.

[0051]

Therefore the TV monitor 1 of the user without a connected printer does not display the information indicating the presence of the print-object data, but displays the original TV broadcast only. In this example, there are merely given an image display of the merchandise 11 on the TV monitor 1 and an audio explanation, but the information indicating the presence of the print-object data is not displayed.

[0052]

More specifically, in case the printer 3 is not connected, the aforementioned process (process from step s23 to step s30) is not executed on the print-related data separated by the demultiplexing unit 21.

[0053]

Therefore, as the TV monitor of the user having no the connected printer 3 does not display the information indicating the presence of the print-object data, the user without the connected printer 3 need not look at, every time, the annoying display indicating the presence of the print-object data, thereby being relieved from the unpleasant feeling cause by the display rather irrelevant to the user without the connected printer.

[0054]

Besides, since such process can be executed at

the TV system of the user, it is unnecessary for the TV broadcast wave source side to execute a cumbersome process such as recognizing the system status (presence/absence of printer etc.) of many users and preparing and transmitting a corresponding content of broadcasting.

[0055]

In the first and second embodiments explained above, it is also important how the print data analyzing unit 25 (print data analyzing unit 33 in the second embodiment) can recognize an effective term of the portion positioned between the tags <print_system> and </print_system> in the print-related data. This is because the TV broadcast varies time-sequentially, and the print-related data have to be constructed correspondingly.

[0056]

This can be resolved by describing, in the print-related data, a tag <print_system_cancel> and a tag </print_system_cancel> in synchronization with the content of the TV broadcast. Thus, the print data analyzing unit 25 (print data analyzing unit 33 in the second embodiment), upon receiving the tag <print_system_cancel> and a tag </print_system_cancel>, invalidates print-related data received time-sequentially earlier.

[0057]

Also the portion between the tag <print_document> and the tag </print_document> may be described with a URL (uniform resource locator). In such case, it is possible by providing the TV system of the user with means capable of access to a web server, to fetch and print the print data.

[0058]

The present invention is not limited to the foregoing embodiments, but is subject to various modifications within an extent not exceeding the scope of the present invention. Also a process program for executing the process of the invention explained in the foregoing may be stored in a recording medium such as a floppy disk, an optical disk or a hard disk, and the present invention also includes such recording medium. Also the process program may be obtained from a network.

[0059]

[Effect of the Invention]

Thus, according to the present invention, the TV broadcast receiving unit detects whether a printer is connected, then, only in case of detecting that the printer is connected, synthesizes the information indicating the presence of the print-object data with the TV broadcast signal for output to the TV monitor, and, in response to a print instruction from the user, outputs the print-object data to the printer, whereby

the information indicating the presence of the print data is not at all displayed in the TV monitor of the observer without the printer connection, who therefore need not look at the annoying display indicating the presence of the print data, and the user without the printer connection is relieved from an unpleasant feeling caused by rather irrelevant image displays.

[0060]

Also the TV broadcast receiving unit separates the TV broadcast signal and the print-related data transmitted in multiplex form, and transfers the print-related data to the printer, which is provided with functions of analyzing the print-related data transferred from the TV broadcast receiving unit to obtain information indicating the presence of the print-object data and the print-object data, synthesizing the information indicating the presence of the print-object data with the TV broadcast signal for output to the TV monitor, and, in response to a print instruction from the user, executing a printing process on the print-object data, so that the information indicating the presence of the print-object data can be displayed on the monitor only by a printer connection, whereby the information indicating the presence of the print data is not at all displayed in the TV monitor of the observer

having no the printer connection, who therefore need not look at the annoying display indicating the presence of the print data, and the user without the printer connection is relieved from an unpleasant feeling caused by rather irrelevant image displays.

[0061]

In this manner, the present invention inhibits, on a TV monitor of a user having no a printer, a printing-related image display which is irrelevant to such user, thereby relieving the user from an unpleasant feeling caused by frequent irrelevant image displays. Besides, since such process can be executed at the TV system of the user, it is unnecessary for the TV broadcast wave source side to execute a cumbersome process such as recognizing the system status (presence/absence of printer etc.) of the user and preparing and transmitting a corresponding content of broadcasting.

[Brief Description of the Drawings]

[Fig. 1]

A view of a system configuration for explaining a first embodiment of the present invention.

[Fig. 2]

A view showing an example of print-related data to be used in the embodiment of the present invention, described in a format based on HTML.

[Fig. 3]

A view showing an example of an image displayed on a TV monitor in an embodiment of the present invention.

[Fig. 4]

A flow chart showing a process sequence of a first embodiment of the present invention.

[Fig. 5]

A view of a system configuration for explaining a second embodiment of the present invention.

[Fig. 6]

A flow chart showing a process sequence of a second embodiment of the present invention.

[Description of Symbols]

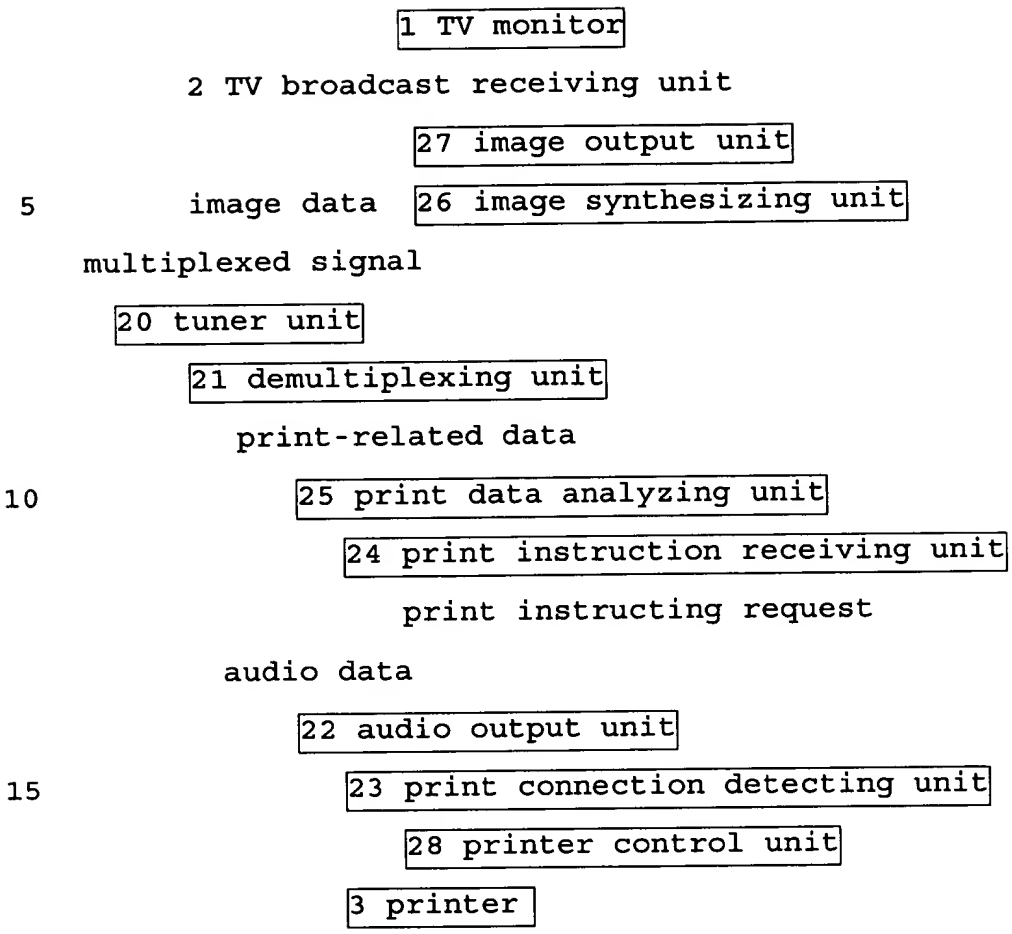
1 TV monitor
2 TV broadcast receiving unit
3 printer
20 tuner unit
21 demultiplexing unit
22 audio output unit
23 printer connection detecting unit
24, 32 print instruction receiving unit
25, 33 print data analyzing unit
26, 34 image synthesizing unit
27, 35 image output unit
28 printer control unit
30 image data input unit
31 print data input unit

36 print process unit

37 sheet feeding tray

38 sheet discharge tray

[Fig. 1]

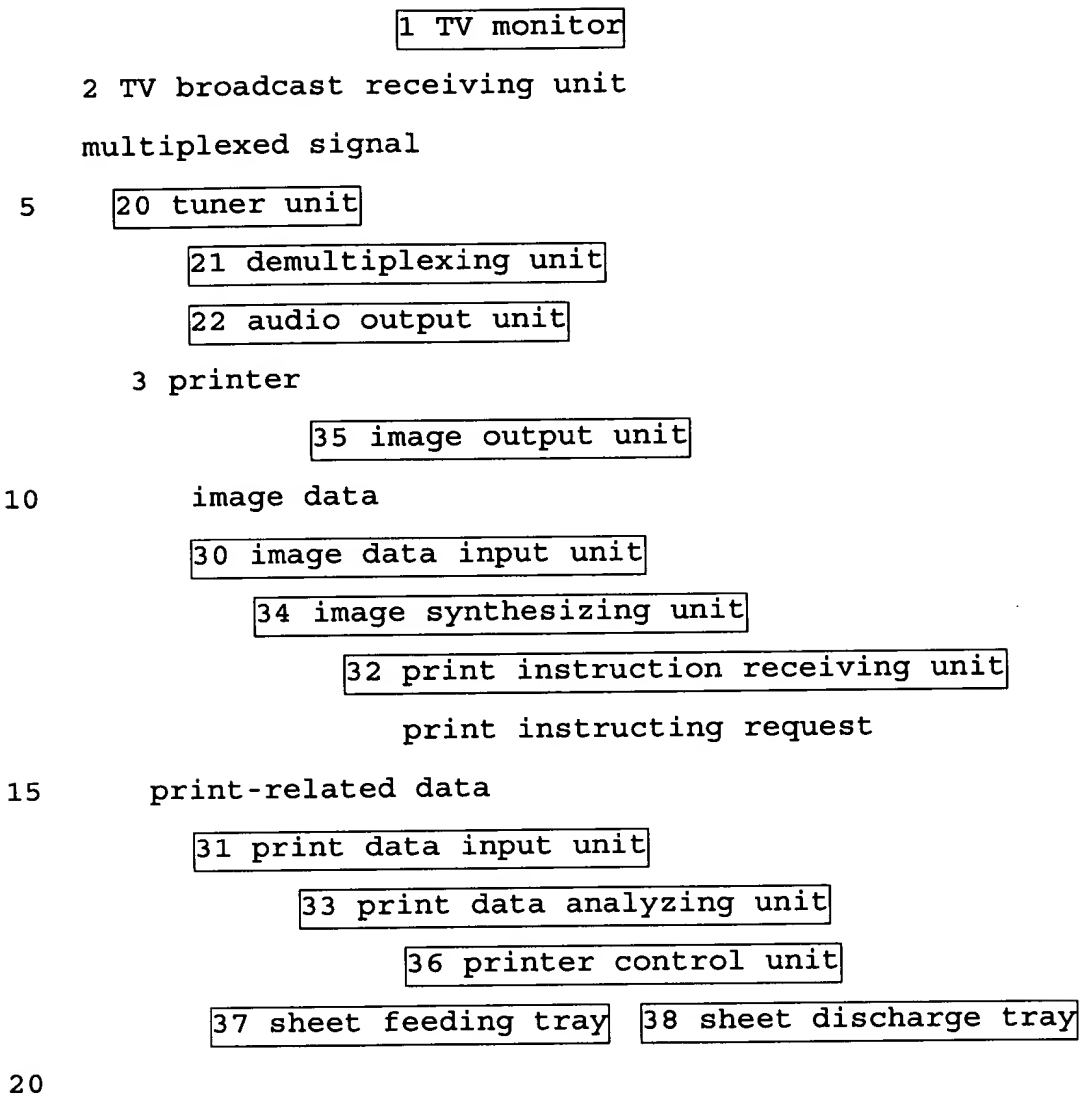


[Fig. 2]

(print-related data)

[Fig. 3]

[Fig. 5]


1 TV monitor
2 TV broadcast receiving unit
multiplexed signal
20 tuner unit
21 demultiplexing unit
22 audio output unit
3 printer
35 image output unit
image data
30 image data input unit
34 image synthesizing unit
32 print instruction receiving unit
print instructing request
print-related data
31 print data input unit
33 print data analyzing unit
36 printer control unit
37 sheet feeding tray
38 sheet discharge tray

[Fig. 4]

START

s1 Tuner unit 20 selects a processed channel

s2 Demultiplexing unit 21 separates image data, audio data and data broadcast

s3 Print data analyzing unit 25 confirms printer connection by printer connection detecting unit 23

s4 Printer connected?

s5 Print data analyzing unit 25 analyzes print-related data

s6 Print-related data received?

s7 Transfer information indicating presence of print-object data transferred to image synthesizing unit 26

s8 Transfer synthesized data to image output unit 27

s9 Print instructing request from user received?

s10 Print instruction receiving unit 24 issues a print instruction to print data analyzing unit 25

s11 Print data analyzing unit 25 transfers print content to printer control unit 28

s12 Printer control unit 28 sends print data to printer 3

END

[Fig. 6]

START

s21 Tuner unit 20 selects a processed channel

s22 Demultiplexing unit 21 separates image data, audio data and data broadcast

s23 Print data analyzing unit 33 analyzes print-related data

s24 Print-related data received?

s25 Transfer information indicating presence of print-object data transferred to image synthesizing unit 34

s26 Transfer synthesized data to image output unit 35

s27 Print instructing request from user received?

s28 Print instruction receiving unit 32 issues a print instruction to print data analyzing unit 33

s29 Print data analyzing unit 33 transfers print-object data to print control unit 36

s30 Print control unit 37 executes printing

END